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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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LEYDIG VOIT & MAYER, LTD
700 THIRTEENTH ST. NW
SUITE 300
WASHINGTON, DC 20005-3960

EXAMINER

ENGLAND, DAVID E

ART UNIT PAPER NUMBER

2143

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/841,102	Applicant(s) SUZUKI ET AL.	
	Examiner David E. England	Art Unit 2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1 – 16 are presented for examination.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the correcting unit determines the timer periodic correction value of said operation period timer by finding the value of said operation period timer at the synchronous timing of the periodic control indicated by the time stamp must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the third global timer must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the second transmitting unit must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure

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must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. The specification is objected to under 35 U.S.C. 112, first paragraph, as failing to adequately teach how to make/ use the invention, i.e., failing to disclose periodic timing time.

6. Applicant's disclosure is insufficient to allow one of ordinary skill in the art to make or use the invention without undue experimentation because applicant did not adequately disclose the necessary apparatus to perform the claimed method. See In re Gunn, 190 USPQ 402, 406 (CCPA 1976.)

Claim 2 is rejected under 35 U.S.C. 112, first paragraph, for reason set forth in the objection to the specification.

7. It is suggested that applicant could overcome 112/first paragraph rejection by providing a suitably detailed system diagram (with appropriate cross-indexing in the detailed description to reference numerals on said system diagrams.) No new matter should be added.

8. Claims 8, 15 and 16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

9. The limitation of, "said control period timer latches the global time of said first global timer in said latch unit at the synchronous timing of the periodic control designated by said control period timer," is not specifically found in the specification.

10. The limitation of claim 15 that states, "a second transmitting unit" is not specifically found in the specification.

11. Claim 16 is rejected because of its dependency to claim 15.

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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13. Claims 2 – 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

14. Claim 2 recites the limitation "the periodic timing time". There is insufficient antecedent basis for this limitation in the claim.

15. Claims 3 and 14 recite the limitation "the timer correction value". There is insufficient antecedent basis for this limitation in the claim.

16. Claim 7 recites the limitation "the control period". There is insufficient antecedent basis for this limitation in the claim.

17. Claim 11 recites the limitation "said operation period timer". There is insufficient antecedent basis for this limitation in the claim.

18. There are numerous limitations that have insufficient antecedent basis in the presented claims. Applicant is advised to amend all other claims that fall under this oversight.

19. The limitations of, "timer correction value" and "timer period correction value" are not specifically supported by the specification as to what these limitations are used for. Furthermore, it appears in the specification that these two limitations are one in the same. Applicant is asked to clarify these limitations.

20. The limitations of, "synchronous timing time" is not specifically supported by the specification as to what this limitation is used for and what the meaning of this limitation is.

Claim Rejections - 35 USC § 102

21. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

22. Claims 1 – 8 and 10 – 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Voth U.S. Patent No. 6351821.

23. Referencing claim 7, as closely interpreted by the Examiner, Voth teaches a periodic control synchronous system for synchronizing periodic control between one or more controllers connected to a network and one or more devices connected said network,

24. wherein said controller includes,

25. a first global timer which is controlled through said network, (e.g. col. 4, lines 34 – 53);

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26. a control period timer which controls the control period of periodic control, (e.g. col. 4, lines 34 – 53);
27. a time stamp providing unit which provides the periodic transfer packet with the time stamp showing the synchronous timing the period control designated by said control period timer by using the global time indicated by said first global timer, (e.g. col. 5, lines 33 – 49); and
28. a transmitting unit which transmits the periodic transfer packet provided with the time stamp to said device, (e.g. col. 5, lines 33 – 49), and
29. said device includes,
30. a second global timer which is controlled through said network, (e.g. col. 6, lines 15 – 31); and
31. a periodic control unit which synchronizes said operation period of said device with the control period by using the synchronous timing time of the periodic control indicated by the time stamp of the periodic transfer packet transmitted by said transmitting unit and the global time indicated by said second global timer, (e.g. col. 6, lines 32 – 54).
32. As per claim 8, as closely interpreted by the Examiner, Voth teaches storage of global timers and said controller comprises a latch unit which latches the global time of said first global timer, and holds the latched timer, (e.g. col. 4, lines 34 – 53), and
33. said control period timer latches the global time of said first global timer in said latch unit at the synchronous timing of the periodic control designated by said control period timer, (e.g. col. 4, lines 34 – 53), and

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34. said time stamp providing unit provides the periodic transfer packet with the time stamp having the global time latched by said latch unit of f set by the portion of the control period, (e.g. col. 4, line 54 – col. 5, line 6).

35. As per claim 10, as closely interpreted by the Examiner, Voth teaches said correcting unit includes,

36. a detecting unit which detects whether the time difference is within a specified allowable range or not, (e.g. col. 13, line 54 – col. 14, line 4); and

37. controls to correct said operation period timer on the basis of the timer correction value or timer period correction value when the time difference is within the specified allowable range, and not to correct said operation period timer when the time difference is out of the specified allowable range, (e.g. col. 14, lines 5 – 23).

38. Referencing claim 11, as closely interpreted by the Examiner, Voth teaches said device includes,

39. an operation control period timer which controls said operation period of said device itself, (e.g. col. 4, line 54 – col. 5, line 6 & col. 6, lines 32 – 54);

40. a comparing unit which compares the synchronous timing time of the periodic control indicated by the time stamp of the periodic transfer packet transmitted by said transmitting unit and the global time indicated by said second global timer, (e.g. col. 4, line 54 – col. 5, line 6 & col. 6, lines 32 – 54); and

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41. a correcting unit which resets said operation period timer when the global time indicated by said second global timer reaches the synchronous timing time of the periodic control indicated by the time stamp, (e.g. col. 4, line 54 – col. 5, line 6 & col. 6, lines 32 – 54).

42. Referencing claim 12, as closely interpreted by the Examiner, Voth teaches said correcting unit resets said operation period timer when reaching the synchronous timing indicated by said operation period timer before the global time indicated by said second global timer reaches the synchronous timing time of the periodic control indicated by the time stamp, and resets said operation period timer again later when the synchronous timing time of the periodic control indicated by the time stamp reaches or exceeds the global time indicated by said second global timer, (e.g. col. 4, line 54 – col. 5, line 6).

43. Referencing claim 14, as closely interpreted by the Examiner, Voth teaches said correcting unit determines the timer periodic correction value of said operation period timer by finding the value of said operation period timer at the synchronous timing of the periodic control indicated by the time stamp, or determines the timer periodic correction value of said operation period timer from the time difference between the synchronous timing time of the periodic control indicated by the time stamp and the global time indicated by said second global timer, and thereby corrects said operation period timer on the basis of the obtained timer periodic correction value, (e.g. col. 6, lines 32 – 54).

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44. Referencing claim 15, as closely interpreted by the Examiner, Voth teaches a periodic control synchronous system synchronizing periodic control between controllers connected first and networks, and one or more devices connected to said first network one or more devices connected to said second network, wherein said controller includes,

45. first global timer controlled through said first network, (e.g. col. 4, line 54– col. 5, line 6);

46. a second global timer controlled through said second network, (e.g. col. 4, line 54 – col. 5, line 6);

47. a control period timer which controls the control period of periodic control of said periodic control synchronous system, (e.g. col. 4, lines 34 – 53);

48. a time stamp providing unit which provides the periodic transfer packet transmitted periodically to said first and second networks with the time stamp showing the synchronous timing of the period control designated by said control period timer by using the global time indicated by said first and second global timers, (e.g. col. 4, line 54 – col. 5, line 6);

49. a first transmitting unit which transmits the periodic transfer packet provided with the time stamp to one or more devices connected to the corresponding first network, (e.g. col. 6, lines 15 – 31); and

50. second transmitting unit which transmits the periodic transfer packet provided with the time stamp to one or more devices connected to the corresponding second network,

51. each one of one or more devices connected to said first and second networks include,

52. a third global timer controlled respectively through said first and second networks, (e.g. col. 6, lines 32 – 54); and

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53. a periodic control unit which synchronizes said operation period of the corresponding device with the control period by using the synchronous timing time of the periodic control indicated by the time stamp of the periodic transfer packet transmitted by said first and second transmitting units and the global time indicated by said third global timer, (e.g. col. 6, lines 32 – 54).

54. Claims 1 – 6, 13 and 16 are rejected for similar reasons as stated above.

Claim Rejections - 35 USC § 103

55. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

56. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Voth (6351821) in view of Strong et al. (5689688) (hereinafter Strong).

57. As to claim 9, as closely interpreted by the Examiner, Voth does not specifically teach said device includes,

58. an operation control period timer which controls said operation period of said device itself;

59. a comparing unit which compares the synchronous timing time of the periodic control indicated by the time stamp of the periodic transfer packet transmitted said transmitting unit and the global time indicated by said second global timer; and

60. a correcting unit which corrects said operation period timer by determining the time difference between the synchronous timing time of the periodic control indicated by the time stamp compared by said comparing unit and the global time indicated by said second global timer at the synchronous timing indicated by said operation period timer, and determines the timer correction value or timer period correction value of said operation period timer on the basis of the obtained time difference.

61. Strong teaches said device includes,

62. an operation control period timer which controls said operation period of said device itself, (e.g. col. 13, lines 27 – 38);

63. a comparing unit which compares the synchronous timing time of the periodic control indicated by the time stamp of the periodic transfer packet transmitted said transmitting unit and the global time indicated by said second global timer, (e.g. col. 13, lines 38 – 58); and

64. a correcting unit which corrects said operation period timer by determining the time difference between the synchronous timing time of the periodic control indicated by the time stamp compared by said comparing unit and the global time indicated by said second global timer at the synchronous timing indicated by said operation period timer, and determines the timer correction value or timer period correction value of said operation period timer on the basis of the obtained time difference, (e.g. col. 13, lines 38 – 58). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Strong with Voth because

it would be more accurate for the device to accommodate for the latency from the transfer time to the arrival time of the packet to achieve as close to the time designated by the master global time.

Conclusion

65. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

66. a. Saito et al. U.S. Patent No. 5887143 discloses Apparatus and method for synchronizing execution of programs in a distributed real-time computing system.

67. b. Berthaud U.S. Patent No. 6157957 discloses Clock synchronization system and method using a continuous conversion function for a communication network.

68. c. Blood et al. U.S. Patent No. 6202067 discloses Method and apparatus for correct and complete transactions in a fault tolerant distributed database system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David E. England whose telephone number is 703-305-5333 and 571-272-3912 as of Oct. 28. The examiner can normally be reached on Mon-Thur, 7:00-5:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on 703-308-5221. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David E. England
Examiner
Art Unit 2143

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DAVID WILEY
SUPERVISORY PATENT EXAMINER
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